Space Weather Forecast

Issued on Friday, 06 October 2023 at 01:26 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of M-flares throughout. Slight chance of an isolated G1/Minor Storm interval on 06 Oct.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Activity has been Low, with only minor Common-class flares observed. There are 11 sunspot regions on the disc, with the two largest regions in the north-centre disc presenting the highest threat of flare activity. A previously large region in the southwest quadrant has undergone a marked decline. The remaining regions are either weak or stable. Three CMEs (coronal mass ejections) have been observed in the last 24 hours, and will be analysed for any potential Earth-directed components.

Solar Wind / Geomagnetic Activity: Solar winds started at slightly elevated levels, but increased close to elevated levels later in the period due to the arrival of a CME. Total magnetic field strength was weak, but with a spike towards moderate strength in line with the arrival of the CME, although the north-south component only varied weakly. Geomagnetic activity started Active, with a G1/Minor Storm interval 05/0300-0600 UTC, but has been Quiet since.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels, with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Mainly Low with a slight chance of Moderate flare activity, mainly from AR3451 and AR3452 in north centre disc.

Solar Wind / Geomagnetic Activity: A coronal mass ejection which left the Sun on 02 Oct appears to have recently arrived at Earth, with effects from this feature expected to decline through the forecast period. Solar winds have reached close to 500km/s due to the CME with these declining towards background levels by the end of the period, in the absence of further CMEs. No fast solar winds are forecast to connect with the Earth. Quiet to Unsettled conditions at first, but with an increased risk of Active or G1/Minor Storms due to the CME. A decline back to Quiet conditions is then expected through the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is most likely to remain at background levels, with a very low risk of enhancements from the current sunspots on the disc.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	30	10	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.